

## ABSTRACT OF THE DISCLOSURE

To realize an adaptive antenna array system which improves reception quality of desired signals by properly suppressing interference signals. The system includes: a signal detection section which detects base station signals from signals received by antenna elements; a control section which selects desired signals and interference signals to be cancelled from among the detected base station signals; a spatial signature detection section which detects spatial signatures of the desired signals and the interference signals to be cancelled; a virtual-signal generation section which generates virtual-signals for the interference signals to be cancelled using the spatial signatures thereof; an array weight generation section which generates array weights for the antenna elements by multiplying the inverse matrix of a correlation matrix of the virtual-signals by the spatial signatures of the desired signals; and a signal combining section which combines the received signals using the array weights.